LED Flashlight

Kit contains:

- Jumbo craft stick half
- LED bulb
- 2 Copper tape strips
- Coin battery
- Binder clip
- Label sticker
- Tiny piece of poster tape

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INSTRUCTIONS

Step 1. Attach a strip of copper tape along each side of craft stick. Note that the tape strips should not touch.

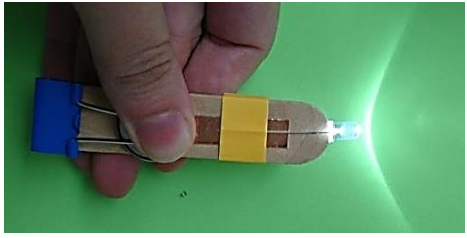
Step 2. Insert the craft stick between the leads of your LED bulb. Each lead should touch a different strip of copper tape.

Step 3. Clamp your binder clip to the other end of the craft stick. Flip up the wires so that they are touching the copper tape.

Step 4. Sandwich your battery between the copper tape and a binder clip wire. Press the circuit together. Does it light up? If so, great! If not, flip your bulb. The + side of the battery needs to touch the tape connected to the longer + lead.

Step 5. When you are confident your circuit works, secure the LED with the label. Place the poster tape between the battery and craft stick to prevent slipping. The battery should still touch copper.

Step 3. Squeeze the binder clip wires together to complete the circuit and make the LED light bulb glow.



Your flashlight might not be powerful enough to illuminate a dark room, but it's great for communicating with Morse code.

MORSE CODE

Morse code is a system of short dots (•), long dashes (–), and spaces to represent letters, numbers, and punctuation marks. (Technically, this makes Morse code a cipher). It was first developed in the late 1830s and early 1840s by Samuel Morse and Alfred Vail to transmit messages with electrical pulses on the new telegraph machine. It was later used to communicate via radio waves and with flashing lights. Signal lights are still used on ships at sea.

A • –	**J** • – – –	**S** • • •
B – • • •	**K** – • – •	**T** –
C – • – •	**L** • – • •	**U** • • –
D – • •	**M** – –	**V** • • • –
E •	**N** – •	**W** • – –
F • • – •	**O** – – –	**X** – • • –
G – – •	**P** • – – •	**Y** – • – –
H • • • •	**Q** – – • –	**Z** – – • •
I • •	**R** • – •	

The distress call, SOS, is signaled • • • – – – • • • three short, three long, three short. Be sure to pause between letters, words, and sentences.